Licorice fern

Polypodium glycyrrhiza

Left photo courtesy of California Lutheran University's Wildflowers of Southern California page: http://ww1.clunet.edu/wf/nca/flowers/fwr-494.htm
Right photo courtesy of Pacific Rim Native Plants Nursery's fern page: http://www.hillkeep.ca/ferns.htm

Range

Distribution photo courtesy of Flora of North America: http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=233500977

Found in moist temperate forests of the Pacific coast, this epiphyte ranges as far south as Marin county and as far north as coastal Alaska. Inland, it resides in the western cascades, the valleys of British Columbia, and the Columbia Gorge (5)

Clearwater National Forest in Idaho is P. glycyrrhiza's only known location further inland (4)

Climate, Elevation

Low elevation, below 1,800 ft (13, 4). P. glycyrrhiza's distribution indicates it prefers a moist temperate region with warm, wet winters, cool, wet summers, and dense fog. "All inland locations are associated with the riparian areas of large streams that have coastal environments" (4).

Local occurrence (where, how common)

Look for this fern on rocks, logs and the braches of bigleaf maple and alder trees in shady lowland forests throughout its range (1, 2)

Habitat preferences

The epiphytic P. glycyrrhiza will be spotted growing on bigleaf maple trees in low elevation forests. Can also be found on wet, mossy ground, logs and sometimes forms large sheets over moist rocks (7). Prefers partial shade to full shade (10). However it is also documented that it can grow in no shade at all for short periods, and that despite its requirement for moist soil, it can tolerate brief drought (11, 12). "It needs to be in the ground or planted on a rotted log in areas with extended periods of frost or the rhizomes will freeze" (http://www.fancyfronds.com).

Plant strategy type/successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)

The habitat preferences of P. glycyrrhiza indicate that it is not a stress tolerator. As it is highly associated with bigleaf maple, it would most likely occur in older primary succesional forests in which this tree species is well

established. As an epiphyte, it may unlikely compete with the host plant by crowding out its leaves. Can also be found in mid-seral Douglas fir and grand fir cover types (4)

Associated species

Associates with mossy Bigleaf maple (pojar), Douglas-fir, grand fir (4), salix spp. (3), and other moist forest species.

May be collected as: (seed, layered, divisions, etc.)

Collect and propagate using divisions and spores.

Collection restrictions or guidelines

Collect spores in the late fall and spring (9). Sow spores thinly in pots covered with glass or plastic (an aquarium with a glass cover will work (14)) to create a moist, humid environment, allowing the gametophytes to fertilize, then carefully place small clumps of the plantlets into individual pots and keep humid. Plant in a sheltered position when plants are 2 years old (12). Make sure your plants do not get moldy when under plastic or glass (6).

Use division in the spring (12). This fern goes dormant in the summer and can be difficult to find in this time (13), so mark your plants to avoid destroying them if you will be modifying the site then.

Seed germination (needs dormancy breaking?)

For the spore to germinate, it must be kept moist at all times (14). Spores do not need dormancy breaking, and can be sown as soon as they are ripe. Smith and Robinson kept their cultures at 23 degrees Celsius under continuous fluorescent light at 250 lux (15).

Seed life (can be stored, short shelf-life, long shelf-life)

With increasing spore age, the percentage of viable spores decreases, with an increasing delay in germination. Immediately after collection, spores germinated at about 89.6%, while after 4 years of storage, germination declined to 53.7%. (15).

Recommended seed storage conditions

Smith and Robinson stored their spores at 4 degrees Celsius in an air-tight screw-capped vial in their study on age vs. spore viability in P. glycyrrhiza. The spores had a water content of 6.5% (15)

Propagation recommendations (plant seeds, vegetative parts, cuttings, etc.)

Division would be the simplest form of propagation. However, if that is not possible, propagate using spores.

Soil or medium requirements (inoculum necessary?)

Sow in high densities on the surface of a humus rich, sterilized soil – this plant does not tolerate heavy clay soils or soils that lack sufficient nutrients (12). Any fairly porous medium such as peat moss, equal parts sand and shredded organic material is suitable (14).

Installation form (form, potential for successful outcomes, cost)

As mentioned before, wait until the plants are about 2 years old before planting out, and make sure they are placed in a shady area which will receive sufficient moisture (12).

Recommended planting density

None indicated, however, these plants are acclimated to growing in mats and in shade, so consider this when installing.

Care requirements after installed (water weekly, water once etc.)

Water often enough, depending on climate, but do not saturate. Keep the plant moist at all times, especially during establishment period. While P. glycyrrhiza tolerates drought, it will not survive for long. This plant normally dries in the summer during its dormancy.

Normal rate of growth or spread; lifespan

P. glycyrrhiza grows to 0.3 m by 0.3 m [(11)]. Height 10-40 cm and spread 40-50 cm. [(10)]. Growth rate and overall lifespan undetermined.

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Data compiled by (student name and date)

Ivona Kaczynski, May 9, 2005.